Shoot the core
Pre-history of the Shmup

- Space race, Apollo moon missions (1957-1975)
  - Apollo 11 moon landing (1969) had tremendous impact on popular consciousness and culture
- Led to general interest in space themes
  - Spacewar! (1961)
    - University environments only (needed PDP-1)
    - Realistic 2D physics in gameworld
    - Reimplemented as Computer Space (1971)
      - Nolan Bushnell & Ted Dabney: would later found Atari
    - Influenced later games (Asteroids)
  - 2001: A Space Odyssey (1968)
    - Stanley Kubrick film masterpiece
    - Realistic portrayal of space travel
    - Theme of human transcendence
    - **Not** combat oriented
Ignition: Star Wars

- Star Wars (1977)
  - Watershed cultural event
  - Compelling scenes of space combat
  - Combination of the hero’s journey and the Western
  - Set the stage for....
Space Invaders: The First Shmup

- Space Invaders (1978)
  - Easily understandable fictional background, human vs. alien
  - Simple to learn, hard to master
  - Huge cultural phenomenon in US and Japan
    - National shortage of coins in Japan!
    - Songs written about game’s addictiveness!
      - “He’s hooked, he’s hooked, his brain is cooked”
  - 1-D cardinality: move left or right
    - Due to this, known as a fixed shooter, gallery shooter, or single screen shooter
  - First major breakout game since Pong
    - Opened new directions for computer games
Space Invaders: Thematic Mother of all Shmups

- **Lone hero**
  - Fighting waves of aliens against long odds
    - Western notion of rugged individualist hero
    - Japanese notion of lone samurai
    - Elements of the kamikaze

- **Xenophobic**
  - It’s us vs. them baby
  - Who are they? Not us!

- **Abstract**
  - Clearly not a depiction of reality
  - Abstract representation of a battle

- **Decontextualized**
  - What are the aliens like? Why are we fighting them? Why are they fighting us? Do they have families? What does this battle mean in the overall war? We have no idea.
I-d to the Max: Galaga, Phoenix and Galaxian

- **Galaxian (1979)**
  - Improved on Space Invaders with aliens that would dive bomb the player
  - No bases
  - Full color, background music

- **Phoenix (1980)**
  - First shmup boss (level 5)

- **Galaga (1981)**
  - Scoring system awards one value for ships in formation, and a higher value for ships when attacking
  - Aliens can capture player ship
    - Possible to recapture for double-fire
  - Bonus round
Problems with Fixed Shooters

- Challenge types do not vary
  - Aiming at aliens, dodging bullets and aliens
  - Learning patterns of alien ships
  - Not enough variety of challenge

- Too difficult...
  - New game players were quickly dispatched
  - Reduces desire to play again

- ... and too easy
  - Once players learn patterns, can play a very long time
  - Only required strategy is to memorize alien patterns

- Limited narrative scope
  - No characters, only ships
  - No story being told
Defender (1981)

- Breakthrough on multiple levels
  - Full 2D motion
  - Wraparound game world
    - “Scanner” shows radar like view
    - First scrolling shooter & horizontal shooter
  - Multiple goals
    - Rescue people
    - Destroy enemies
  - Two weapon types
    - Beam, smart bombs
  - Permits more complex gameplay
    - Many more interesting decisions
    - Track state of people
    - Tradeoff of clearing an area vs continual movement
- Con:
  - complex button scheme
  - Brutally difficult
Scramble (1981)

- Establishes conventions for horizontal side-scrollers

- Continuous scrolling
  - In Defender, could move right or left
  - This is a major innovation
  - Makes it possible to have level designs
    - Positioning of enemies to create player challenge and control experience
    - Gives designer control over pace of play
  - Permits a kind of landscape narrative
    - As player progresses through the level, uncovers more about the environment
    - World and story uncovered in details of revealed landscape
    - Not possible with 1d waves of aliens, since every level looks the same as the one before

- Fuel challenge: must keep ship fueled
Zaxxon (1982)

- Horizontal side-scroller
- First game to use isometric projection
  - Very distinctive
  - No lasting impact on shmups
- Well developed *landscape narrative*
  - Fly over asteroid city
  - Details are uncovered as you progress
- End boss
  - Zaxxon, the robot
- Fuel challenge
  - Like Scramble, must keep ship fueled
Xevious (1983)

- Credited as first vertical scrolling shooter
    - OK, so Xevious is first influential scrolling shooter
  - Well developed landscape
    - No distinct levels, gradually evolves
    - Designed placement of enemies

- Strong graphics
  - Sense of improved realism
    - Different kinds of land, sea, forest, etc.

- Weak landscape narrative
  - Levels designed to create challenges, not to tell a story
  - Scramble and Zaxxon do better

http://ourworld.compuserve.com/homepages/ArcadeWin/XEVIOUS.htm
Gradius (1985)

- With Gradius, shmups genre *stabilizes*
  - Scrolling over landscape
    - In Gradius, side-scrolling
  - Multiple distinct space-themed levels

- Power-up system
  - Vulgus (Capcom, 1984) brings powerups to shmups
    - Immediately before better-known *1942*
  - Gradius has *power meter* powerups

  ![Powerup Icons]

  - Like pinball, each powerup collected moves indicator forward
  - Also introduces “multiple” powerup, for multiple firing
    - Can be combined with other powerup features
  - Adds additional dimension of strategy
    - Which powerup capability should be collected next?
Level design principles for Shmups

- Safe and unsafe spaces
  - Via walls and the location/trajectory of enemies and bullets
  - Create zones of (relative) safety and danger

- Leading the player
  - Via the placement of enemies and rewards (powerups)
  - Cause the player to move to specific places on screen
  - Can lure the player into spaces that seem safe (but won’t be by the time they arrive)
Gradius III

**Leading:** Player is attracted to powerup, wants to move there.
Gradius III

**Leading:** Player has gone for powerup.

**Safe and unsafe:** safe zone is contracting rapidly, and enemy trajectory will go through powerup
Gradius III

Leading: Player narrowly avoids powerup trap, moves to engage line of enemies coming in from right.

Safe and unsafe: escaping into bottom of screen safe zone
**Gradius III**

*Safe & unsafe:* A line of bullets slices through area in front of powerup, in case player was tempted by a quick snatch. Fast incoming enemies keep player pinned down at bottom in narrow safe zone.
Gradius III

Safe and unsafe: By clearing the line of enemies, the player buys a little time and safety.
Exploring Fantasy Narratives

- Two games that explored more fantasy-style settings
  - Indication that genre is free to be less literal
    - Improves storytelling capability of landscape narrative
- **Salamander/Lifeforce** (1986)
  - Introduces the *shmup snake*
  - A large snake in space
  - Goofy, but works
  - A kind of mini-boss
- **Twinbee** (1985)
  - First “cute-em-up”
  - Vertical scroller
  - Brightly colored palette
  - Whimsical landscape, enemies
Parodiuss Series

- A series of games designed to poke fun at conventional shmups
  - An indication of the popularity of the genre that a large audience was familiar enough to appreciate a parody of it

- Jikkyō Oshaberi Parodius (1995/6)
  - Emblematic of the series
  - Gradius style gameplay
  - Humorous, playful graphics
  - Strong level design: challenging to play
    - Needed to authenticate to core shmup players
Golden Age of Shmups

- Once the NES reestablishes the commercial viability of computer games, many shmups are created for consoles
  - See Xenocide Files at [www.shmups.com](http://www.shmups.com)
- In Japan, continued viability of shmups in arcades leads to high quality arcade-first shmups
  - R-Type is a notable example
- Best games tend to have some innovative aspects, but clearly work within genre conventions
- Scores of shmups were made for the SNES and Genesis consoles
  - Things were going great until…
Nintendo 64 and the shift to 3D

- The Nintendo 64 console marked the shift of console gaming to 3D
  - 2D seemed backwards, obsolete
  - Was dominant console of its generation
  - Nintendo was not easy to work with as a small independent developer, like shops that make shmups

- Led to a dramatic reduction of interest and commercial viability of shmups: The 3D Crisis
Shmups and the 3D crisis

- Shmups adapted to the 3D crisis in several ways

- Integrating 3D graphics
  - Games started experimenting with the addition of 3D graphics

- Stay the course
  - Continued production of standard 2D shmups

- Gameplay innovation
  - Trying different gameplay innovations to create novelty

- Appeal to niche players
  - Brutally difficult games for hardcore players

Einhander – 3D graphics innovation

Shienryu – steady as she goes
3D Graphics Innovation

- **Einhänder (1997)**
  - Embraced 3D
  - Established conventions for how to handle the transition to 3D
  - 2D gameplay, but with 3D graphics for the ships, backgrounds etc.
  - Some shifting of camera angles

- **Released on Playstation One**
  - N64 was never a big platform for shmups, very few releases
  - Created by Square, who typically made RPGs (Final Fantasy series)

- **Also notable for use of 3D**
  - R-Type Final (2003)
Gameplay Innovation
Radiant Silvergun (1997)

- **No powerups**
  - All weapons available at beginning
  - Emphasizes strategy of choosing best weapon for a given situation
  - Gives designers more control over user experience, since player weapons always known
  - Sword is unique weapon for shmup

- **Storytelling**
  - RSG has original storyline, very well integrated into level design
  - Demonstrates expanded narrative potential for shmups
  - Can have strong characters in cut scenes
  - *Motivation* for actions in game

Translation: [http://www.emuxhaven.net/~silver/Main%20Story.html](http://www.emuxhaven.net/~silver/Main%20Story.html)
Ikaruga (2001)

- Unique gameplay aspects
  - Polarity system
    - Ship is white or black
      - Can be changed by player
    - Bullets are white or black
      - Only opposite polarity bullet kills
  - Chaining system
    - Tied to polarity
    - Kill enemies with similar polarity in a row
- Emphasizes beauty
  - Visually appealing
  - At times feels like work of fine art
Triggerheart Exelica (2006/7)

- Unique gameplay element
  - Grappling mechanic
  - Can grab enemy spaceships, then use them as a shield or a kind of thrown hammer weapon
  - Gold reward only drawn into ship when you aren’t firing
    - Reward for being judicious about when to fire

- Mature use of 3D graphics
  - 3D enemies
  - Flying over 3D background
  - Gameplay still in 2D
Indie Shmups

- Japanese solo efforts
  - Shoot the Bullet (2005), by ZUN (Junya Ota?)
    - Player takes pictures to clear enemies, instead of firing bullets
    - Part of Touhou Project, a series of Japanese pro-am shooters
      - [http://touhou.wikia.com/wiki/Touhou_Wiki](http://touhou.wikia.com/wiki/Touhou_Wiki)

- Everyday Shooter
  - Jonathan Mak (2006)
  - “Everyday Shooter is an album of games exploring the expressive power of abstract shooters. Dissolute sounds of destruction are replaced with guitar riffs harmonizing over an all-guitar soundtrack, while modulating shapes celebrate the flowing beauty of geometry.”

- Platypus (2005?)
  - Claymation shmup
Appeal to Niche Players
Manic Shooters

- Games feature staggering numbers of bullets onscreen
  - Ship often has small area of vulnerability
  - Also called *bullet hell*, *curtain fire*, and *danmaku*
  - Appeals to the experienced shmup player who desires extremely challenging gameplay
  - A sign of maturation of the genre
    - Also a sign of becoming inwardly focused

- **Dodonpachi** (1997)
  - Absurdly powerful weapons
    - Powerups galore
  - Enemies fire copious bullets
  - Chaining scoring system
    - Hit enemy within a second of last one to increment
  - Developed by Cave
Espgaluda II: Black Label (2005/2010)

- Combination of innovative mechanics and manic shooter style
  - Green gem charging super-shot

- Beautiful use of bullet patterns
  - Can see an evolving aesthetics of bullet patterns over time

- Also a Cave shooter
Lessons from Shmups

- Shmups are an example of a genre that went from the peak of popularity to niche status

- How do game designers react to the changing fortunes of a genre?
  - What are design moves that pay off, or lead to long term problems?

- Shmups continue to have a following
  - Niche, but enthusiastic
  - Increasing interest from indie game makers
  - As mobile games become more prevalent, 2D games are having a resurgence
  - Shmups play into this trend, as well as the casual game trend